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ABSTRACT

In this study an attempt was made to measure variables which were expected to be related to individual differences in infants' social responsiveness toward strangers. The subjects were 48 infants (24 boys and 24 girls) between 8 and 13 months of age. Most were children of Cornell University faculty or graduate students, but a broad range of families from a small city in upstate New York was represented. Before an infant was tested for stranger response, his mother was interviewed in her home. Interview questions were designed to provide measures pertinent to five general hypotheses about determinants of individual differences in reactions to strangers. These hypotheses were: (1) Infants who have had little exposure to people would be more likely to be upset by strangers. (2) Babies who protest separation from mother would be more likely to be upset by strangers. (3) Strangers who are visually quite similar to the appropriate sexed parent would be more upsetting to the baby because of cognitive confusion on the baby's part. (4) Infants who are irritable or sensitive would be more likely to be upset by a stranger. (5) Infants whose mothers are protective about strangers would transmit their concern to their infant. A few days after each interview, systematic observation was made of each infant's reaction to two unfamiliar adults. Detailed behavioral descriptions of the reactions were recorded. (CS)

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Determinants of Individual Differences in Infants' Reactions to Unfamiliar Adults*

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Although there have been a number of recent studies of the so-called "fear of strangers" phenomenon, almost all of them have focused on stimulus, situational and age determinants. There is still very little definitive knowledge about temperamental and experiential determinants.

In this study an attempt was made to measure variables which were expected to be related to individual differences in infants' social responsiveness toward strangers. The data also provide a look at the degree of differentiation of the infant's environment with respect to exposure to various categories of people and a look at the differentiation of infant temperament, based on mother's reports.

Method

The subjects were 48 infants (24 boys and 24 girls) between 8 and 13 months of age. Most were children of Cornell University faculty or graduate students, but there was a broad range of families from a small city in upstate New York.

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Before an infant was tested for stranger response, his mother was interviewed in her home at a time when the infant was asleep. The interview questions were standardized, presented in a set order, and phrased so that they required only a brief, easily coded answer or rating. The questions were designed to provide measures pertinent to five general predictions or hypotheses about determinants of individual differences in reactions to strangers. The hypotheses and measures are as follows:

1) Infants who have had little exposure to people would be more likely to be upset by strangers. Measures of exposure were obtained from the number of siblings, the number of adults physically interacted with several times a week (Familiar Adults), and the number of adults physically interacted with once a week or less (Less Familiar Adults).

2) Babies who protest separation from mother would be more likely to be upset by strangers. This hypothesis was based on Spitz' (1950) notion that fear of strangers is produced by the feeling that the infant has lost, or is about to lose, his mother. A score (Left Alone by Mother) based on the infant's usual reaction when mother goes out of the room was obtained.

3) Strangers who are visually quite similar to the appropriate sexed parent would be more upsetting to the baby because of cognitive confusion on the baby's part. A measure of the physical similarity of the father and the male stranger and another of the similarity of the mother and female stranger were obtained.

4) Infants who are irritable or sensitive would be more likely to be upset by a stranger. Measures were obtained of the infant's adaptability (e.g. to changes in routine), his sensitivity to stimuli (e.g. loud sounds and animals) and his physiological sensitivity (e.g. to teething and eating).

5) Infants whose mothers are protective about strangers would transmit their concern to their infant, either by tensing, or acting nervous during the stranger approach or perhaps through previously rewarding the infant's negative reactions toward strangers. A rating of the mother's concern about the study and strangers was made in an attempt to measure this quality.

A five point rating of the infant's usual reaction to strangers was made from the interview report. Finally, the onset of any negative reactions was ascertained.

A few days after the interview, each mother brought her infant to a comfortably furnished laboratory room for systematic observation of his reaction to two unfamiliar adults. During the approximately 30 minute session, the strangers interacted with the infant seven times, using several standardized approach sequences. In general, the experimenter began across the room, moved up close to the baby, and then touched his hand. Infants were approached in this manner by both strangers while on mother's lap and while four feet away from her in an infant feeding table. In addition, each infant was tested in a peek-a-boo-type situation by the male experimenter, and picked up by each experimente

The infant's facial expressions (ranging from "smile" to "pucker"), vocalizations (ranging from "laugh" to "cry"), and postural activity (ranging from "reach toward" to "withdraw") were recorded every three seconds during each episode. Although we collected these very detailed behavioral descriptions of the infants' reactions, we chose, in this paper, to report only the overall composite stranger response score based on the sum of the weights assigned to each behavior. This score was a reliable (r=.95) record of S's affective reaction during the session and was highly related to the scores for each of the seven stranger episodes, except the peek-a-boo one. An earlier paper by Morgan and Ricciuti (1969) provided more details about the procedure and scoring.

Results

About three-fourths of these 8-13 month infants showed avoidance or distress toward the strangers during some part of the laboratory session, but less than half had an overall composite score weighted in the negative (avoidance or distress) direction. This composite laboratory reaction was significantly related (r=.42) to the mother's report of the infant's usual current reaction to unfamiliar people, but was not related to her report of the age of onset of negative reactions. Likewise, age of onset was not related to the usual current reaction, as reported by the mother.

In order to get a better picture of the components of the infant's environment and temperament, we next looked at the interrelationships

of the measures obtained from the maternal interviews. Table 1 lists 10 such independent variables, grouped under five main headings corresponding to the five hypotheses described above. There were few significant relationships between the variables, either between or even within the headings. For example, there were no significant relationships between the number of siblings, the number of familiar adults, and the number of less familiar adults. Likewise, we seem to have measured three quite independent dimensions of infant temperament, adaptability, sensitivity to stimuli, and physiological sensitivity. These findings indicate that both the infant's social temperament and his environment are highly differentiated and that it would be a considerable oversimplification to speak of generally "sensitive" or "socially sheltered" infants. This observation is similar to that made by Yarrow, Rubenstein and Pedersen (1974) in their recent book on the infant and his environment.

The relationships between these independent variables and the three measures of reactions to strangers provides little support for any of the aspects of hypotheses two through five. Only 1 out of 21 correlations was significant at the 5 percent level and it was in the direction opposite from that predicted by us and the literature.

The evidence concerning the aspects of the social exposure hypothesis is somewhat more encouraging. In this case, there were two significant correlations out of nine. Most interesting was the additional finding (not shown in Table 1) of a correlation of .58 between the composite stranger response score and the <u>increase</u> from 3 months of age to

the month of the interview) in the number of Less Familiar Adults who interacted with the baby. That is, it seems that an infant who was not handled by many relatively unfamiliar people when he was younger is later predisposed to react negatively to the approach of a stranger, especially if he has been exposed to a number of them recently. It is as if he is feeling, "Oh no, another one of those unfamiliar people is going to try to pick me up."

Bronson (1972) made the reasonable argument that the type of experiences (pleasant or unpleasant) with strangers would be more important than the amount. Our data, while indirect, provide partial support for this conclusion. The positive (r=.42) relation between the mother's report of the baby's current reaction and the lab composite could be interpreted to support Bronson; however, we have no more reason to believe that the differences in current reaction were caused by the stranger's ineptness than by sensitivity differences in the infant. Before concluding we would like to discuss three points which may partially account for the relatively small number of significant findings.

One possible reason for the relative lack of significant correlations may be that mothers' reports are not adequate for obtaining valid measures in these areas. While the problems inherent in such data can not be denied, we tried to deal mainly with concrete and specific variables which did not seem threatening or difficult for the mothers to assess. It should also be noted that almost all the other studies in this area have also relied on mothers' reports.

A second problem is that it may be difficult to obtain stable measures of individual differences in stranger response. Not only is there some short term variability (e.g., Morgan, 1973; Rand and Jennings, 1974; Shaffran and Decarie, 1973), but even more problematical are the marked differences in the age of onset, the duration of the sensitive period, and the intensity of the typical or maximum reaction during this period. Thus, measurements at any one age will catch infants at different points on their individual sensitivity curves. Resulting individual differences would then be due, at least in part, to differences in the time at which the infant happened to be tested. This seems to point to the need for longitudinal studies and composite measures taken over a period of time.

Third, although there have been a number of studies (Bronson, 1972; Collard, 1968; Maccoby and Feldman, 1972; Paradise & Curcio, 1974; Robson, Pedersen and Moss, 1969; Scarr and Salapatek, 1970; Schaffer, 1966) in which other variables have been related to stranger response, only a few significant findings have been rported, and there seem to us to be few consistent patterns across studies. In most of these studies, as in the present one, nonsignificant findings have considerably outnumbered the significant ones. In fact, both Schaffer (1966) and Maccoby and Feldman (1972) have specifically commented on the relative lack of support their data provided for these and other hypotheses about determinants of individual differences in stranger response. Therefore, it may well be that, except for certain aspects of the social exposure hypothesis, the types of hypotheses and variables measured here are not major determinants of stranger reaction.

We are hoping to follow-up this work by: 1) attempting to replicate certain of the major findings with new data and by utilizing some other relevant sources of data, especially that of Emde, Gaensbauer and Harmon (in press); 2) amplifying the review of the published litereature; and 3) treating in more detail the issues of whether stable individual differences can be measured and whether they are reflected to other aspects of infant functioning and to later adjustment.

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Table 1 Intercorrelations of Infant Environment, Temperament, and Reactions to Strangers

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	Social Exposure			Separation	Similarity		Infant Temperament			Mother's Concern	Response to Strangers		
	1a	1b	1c	2a	3a	3b	4a	4b	4c	5a	a	b	c
1. Social Exposure													
(a) No. of less familiar adults at 3 months	--	.00	-.14	-.01	.05	-.01	-.29*	-.05	-.13	.25	-.09	.18	.41**
(b) No. of familiar adults at 3 months		--	-.27	-.25	-.20	-.10	.03	.08	-.15	.23	-.21	.00	.01
(c) Number of siblings			--	.15	-.13	.06	-.20	.06	.19	.06	.33*	-.05	-.17
2. Reaction to Separation													
(a) Left alone by mother				--	-.32*	-.04	.01	.02	.16	-.10	.15	-.04	.18
3. Similarity of Parent & E													
(a) Discrepancy-Father & Male					--	.05	-.06	.04	-.02	-.28	-.09	.03	.13
(b) Discrepancy-Mother & Female E						--	.22	-.03	.18	-.14	.19	-.02	.01
4. Infant Temperament													
(a) Adaptability							--	-.03	.10	-.16	-.09	-.02	.11
(b) Lack of Sensitivity to Stimuli								--	.00	-.26	.23	-.02	.08
(c) Lack of Physiological Sensitivity									--	-.09	-.33*	.06	.10
5. Maternal Protectiveness													
(a) Lack of Concern about the Study										--	-.02	.09	.10
Reaction to Strangers													
(a) Mother's Report of Onset											--	.17	-.03
(b) Mother's Report of Current Usual												--	.42**
(c) Composite Laboratory													--

Note--High stranger response or separation scores indicate a positive reaction or late onset. Thus positive correlations are in the predicted direction.

* $p < .05$; ** $p < .01$

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